Laryngeal mask airway or endotracheal tube for tonsillectomy? An update

Developments in pharmacology and airway options can influence the choice of airway device for tonsillectomy. After previous consideration in this journal by Bishop and Patel in 2003, the challenges of the shared airway and sometimes conflicting imperatives of patient recovery and surgical access remain the same, but have developments tipped the balance to one or the other?

Tracheal intubation

It was argued that greater familiarity on the part of anaesthetists and surgeons with endotracheal intubation for tonsillectomy made it a more reliable technique. However, the gradual move towards use of the reinforced laryngeal mask airway has reduced the strength of this argument. Familiarity of the entire operating department team with whichever technique is used confers a degree of safety. Surgical preference for intubation to provide optimal operating conditions is important, although this has waned with appreciation of the improved theatre turnover with the use of reinforced laryngeal mask airways.

Using neuromuscular blockade to facilitate endotracheal intubation can present problems regarding tonsillectomy. Suxamethonium provides good conditions, but side effects and complications limit its usefulness. Doses of non-depolarizing muscle relaxants may last longer than a skilled surgeon needs to perform a tonsillectomy. Use of rocuronium and sugammadex for short airway procedures may remove this difficulty, as may the use of short-acting opiates such as remifentanil and alfentanil to avoid using muscle relaxants altogether (Yu and Beirne, 2010).

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While a cuffed endotracheal tube provides good protection from soiling of the lower airway, the degree of laryngotracheal irritation at extubation is much greater than with the laryngeal mask airway. The resultant coughing, straining, venous hypertension with increased risk of bleeding, and potential for laryngospasm are significant drawbacks. A systematic review of airway complications comparing reinforced laryngeal mask airways to endotracheal intubation in adults found a greater incidence of coughing, sore throat and laryngospasm at emergence with the latter (Yu and Beirne, 2010). In a meta-analysis of seven studies involving 741 patients, laryngospasm occurred in 7.5% of cases with an endotracheal tube compared to 1.7% of laryngeal mask airway cases (relative risk 3.16, 95% confidence interval 1.38–7.21). There was no significant difference in risk of regurgitation, vomiting, nausea or success of insertion on first attempt between airway devices (Yu and Beirne, 2010).

Laryngeal mask

The reinforced laryngeal mask airway, although not a 'definitive' airway, offers good protection from soiling, has overall safety and postoperative recovery outcomes that are non-inferior to endotracheal tubes, and performs better in terms of coughing and gagging (Sierpina et al, 2012). Children managed with a reinforced laryngeal mask airway had less airway irritation, spent 4 minutes fewer in theatre postoperatively and experienced less maximal pain in the first 4 hours following surgery (Doksrød et al, 2010). Considering also ease of insertion and lower cost, the reinforced laryngeal mask airway appears an increasingly good choice.

There have previously been concerns over risk of transmissible infections, specifically new variant Creutzfeldt–Jakob disease with incomplete removal of tonsillar tissue and reusable laryngeal mask airways. However, the routine adoption of lower cost single-use devices has resolved this issue. While dislodgement of reinforced laryngeal mask airways is a concern, a study of 1126 children undergoing adenotonsillectomy with reinforced laryngeal mask airway showed displacement in only six of these patients (0.5%) (Gravningsbråten et al, 2009).

Conclusions

Nationwide surveys of anaesthetic practice in 1999 and 2007 showed that over three quarters of tonsillectomies were performed using an endotracheal tube, even more commonly in paediatric practice. Despite this there is increasing acceptance that the reinforced laryngeal mask airway is a valuable tool in the straightforward patient, at a lower cost than disposable intubation equipment.

Initial resistance to the use of the reinforced laryngeal mask airway has dwindled with greater experience among anaesthetists and greater recognition among surgeons of the turnover benefits. With careful collaboration in the positioning of the airway, patient and Boyle–Davis gag, good operating conditions can be achieved. In uncomplicated patients, the single use laryngeal mask airway can now be considered as an equivalent first-line choice to an endotracheal tube. **BJHM**

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